

(19)



(11)

EP 2 766 519 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

10.02.2016 Bulletin 2016/06

(51) Int Cl.:

D06F 39/14 ^(2006.01)

(21) Application number: **12791261.6**

(86) International application number:

PCT/IB2012/055505

(22) Date of filing: **11.10.2012**

(87) International publication number:

WO 2013/054279 (18.04.2013 Gazette 2013/16)

(54) **WASHING MACHINE AND METHOD FOR CONTROLLING THE SAME**

WASCHMASCHINE UND VERFAHREN ZU IHRER STEUERUNG

MACHINE À LAVER ET SON PROCÉDÉ DE COMMANDE

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **14.10.2011 CN 201110321044**

(43) Date of publication of application:

20.08.2014 Bulletin 2014/34

(73) Proprietor: **BSH Hausgeräte GmbH**

81739 München (DE)

(72) Inventors:

- **DAI, Ting**
Jiangsu 210005 (CN)
- **LI, Lianhua**
Jiangsu 210033 (CN)
- **YANG, Chao**
Jiangsu 210000 (CN)
- **ZHANG, Xiaofeng**
Jiangsu 210046 (CN)

(56) References cited:

EP-A1- 2 074 923 EP-A2- 2 261 415
CN-U- 201 553 911

EP 2 766 519 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to a washing machine, comprising: a washing machine main body with a built-in main controller; a cylindrical cavity disposed in the washing machine main body and for receiving laundry; a washing machine door, connected to a washing machine main body casing and for closing a laundry input opening of the cylindrical cavity, formed on the washing machine main body casing; a lock catch, disposed on one of the washing machine main body casing and the washing machine door; a door lock latch, disposed on the other one of the washing machine main body casing and the washing machine door and working together with the lock catch to lock or unlock the washing machine door; an electromagnetic component, mounted on one of the washing machine main body casing and the washing machine door and controlled by the main controller; and an attracted component; wherein upon triggering a start button of the washing machine, the electromagnetic component employs a transient attraction force on the attracted component, so that the lock catch automatically locks the door lock latch. The invention also relates to a method for controlling such washing machine.

[0002] A washing machine of this generic type and a method for controlling the same are apparent from EP 2 261 415 A1.

[0003] A washing machine is a device cleansing laundries through a series of washing procedures such as washing, rinsing, water removing, and drying in order to remove contaminants attached to laundries such as clothes and quilt covers in a rotary drum under the action of water and detergent. A washing machine generally includes: a casing, forming an appearance, and formed with a laundry input opening at a side; a washing machine door, mounted on the casing, and used for opening or closing the laundry input opening; a washing barrel, disposed in the body of the washing machine, and used for filling washing water; a rotary drum, mounted in the washing barrel in a rotatable manner, and used for receiving laundries; and an electric motor, used for rotating the rotary drum. Moreover, a locking switch device is further mounted on the casing and the door of the washing machine, and may lock the washing machine door when the washing machine door should not be opened during working of the washing machine.

[0004] As for the foregoing washing machine in the prior art, laundries are input through the foregoing laundry input opening, the washing machine door is closed, corresponding programs such as washing, rinsing, water removing, and drying are selected, the washing machine switches on the electric motor or drying device of the washing machine according to the selected corresponding programs, and the locking switch device locks the washing machine door in a washing machine working state, thereby preventing the washing machine door from being opened randomly. Before performing a series of corresponding working programs, the washing machine

must first confirm that the washing machine door is already completely closed. However, if a user applies an insufficient force at the time of closing the washing machine door, a latch hook on the washing machine door does not lock a door lock latch, and the washing machine door is not completely closed, resulting in that the washing machine continuously reports a program error, thereby wasting the processing procedure and time of the user for this program error.

[0005] For the above problem, the objective of the present invention lies in that when a washing machine door is not completely closed and locked, the washing machine door may be automatically attracted and locked, thereby omitting processing for this washing machine error mode.

[0006] For the above objective, the technical solution adopted in the present invention is as defined in the independent claim. Preferred embodiments of the invention are subjects of dependent claims, the subsequent disclosure and the attached drawing.

[0007] For the above objective, the technical solution adopted in the present invention is as follows: a washing machine, comprising: a washing machine main body with a built-in main controller; a cylindrical cavity disposed in the washing machine main body and for receiving laundry; a washing machine door, connected to a washing machine main body casing and for closing a laundry input opening of the cylindrical cavity, formed on the washing machine main body casing; a lock catch, disposed on one of the washing machine main body casing and the washing machine door; a door lock latch, disposed on the other one of the washing machine main body casing and the washing machine door and working together with the lock catch to lock or unlock the washing machine door; an electromagnetic component, mounted on one of the washing machine main body casing and the washing machine door and controlled by the main controller; and an attracted component; wherein upon triggering a start button of the washing machine, the electromagnetic component employs a transient attraction force on the attracted component, so that the lock catch automatically locks the door lock latch, wherein further the attracted component is disposed on the other one of the washing machine main body casing and the washing machine door as the electromagnetic component.

[0008] As an improvement of the present invention, the lock catch is disposed on the washing machine door, and the door lock latch is disposed on the washing machine casing.

[0009] As a further improvement of the present invention, the electromagnetic component is disposed at a position on the washing machine main body casing and close to the door lock latch, and the attracted component is disposed at a position on the washing machine door and close to the lock catch.

[0010] As yet a further improvement of the present invention, the electromagnetic component is disposed to be distributed continuously along an edge of the laundry

input opening, and the attracted component is disposed to be distributed continuously along a periphery of the washing machine door.

[0011] As still a further improvement of the present invention, the attracted component is stainless steel, ferroalloy, or a permanent magnet.

[0012] In order to automatically close and attract the washing machine door, the present invention further provides a method for controlling the foregoing washing machine, including the following steps: a. triggering the start button of the washing machine; and b. executing a program for judging whether the washing machine door is closed, where if the washing machine door is not completely closed, the washing machine main controller controls the electromagnetic component to employ an attraction force on the attracted component.

[0013] As a further improvement, the control method further includes the following steps: executing a program for judging whether the washing machine door is closed, where if the washing machine door is completely closed, the washing machine main controller controls the electromagnetic component to stop employing an attraction force on the attracted component.

[0014] As yet a further improvement, the program for judging whether the washing machine door is closed performs judgment through a close signal of the washing machine door generated depending on whether the lock catch locks the door lock latch which is sent to the washing machine main controller.

[0015] As still a further improvement, the washing machine main controller controls the electromagnetic component by putting through or cutting off power supplied to the electromagnetic component.

[0016] Compared with the prior art, the present invention has the following beneficial effects: when a user applies an insufficient force at the time of closing the washing machine door to result in that the washing machine door is not completely closed, the washing machine can automatically attract and lock the washing machine door in deadlock, thereby avoiding a washing program error, and omitting the procedure and time for processing this program error.

[0017] A preferred embodiment of the invention is now described in detail and with reference to the attached drawing. In the drawing,

[0018] FIG. 1 is a three-dimensional diagram of a washing machine

[0019] As shown in FIG. 1, a washing machine 100 of an embodiment of the present invention includes: a washing machine main body 10 with a built-in main controller 13; a cylindrical cavity 50 disposed in the washing machine main body 10 and for receiving laundry; a washing machine door 20, connected to a washing machine main body casing 11 and for closing a laundry input opening 51 of the cylindrical cavity 50, formed on the washing machine main body casing 11; a lock catch 21 and a door lock latch 22 cooperating with each other, used for locking or unlocking the washing machine door 20; and an elec-

tromagnetic component 30 and an attracted component 40 cooperating with each other, where when a start button 60 of the washing machine is triggered, the electromagnetic component 30 employs a transient attraction force on the attracted component 40, so that the lock catch 21 automatically locks the door lock latch 22.

[0020] The washing machine main body 10 includes a casing 11, and the casing 11 includes a top face 11 a, a bottom face 11 b, two side faces 11 c, a back face 11 d, and a front face 11 e. In most cases, the faces of the casing 11 are all made of a conductive metal material, or faces other than the top face 11 a are made of a metal material. Except that the bottom face 11 b and the back face 11 d are uneasily contacted, it is possible that other faces are contacted by a user. An operating panel area 12a, a stuff box area 12b, and a door and handle area 12c are provided on the front face 11e of the washing machine main body casing 11, and the user usually operates these areas as required. Different styles or types of washing machines are different from each other in the positions and the settings of the operating areas. For example, the operating panels of some washing machines are located on the top face, the door and the handle are usually located on the top face for a pulsator washing machine, and some washing machines are not provided with a stuff box. Furthermore, casings of some washing machines are not of a regular hexahedron, for example, a smooth transitional curved face is formed between the top face and the front face, and may further be of some other irregular three-dimensional structures. Embodiments of the foregoing several washing machines are not shown in the accompanying drawing, but can be doubtlessly understood by persons of ordinary skill in the art through the above description. Furthermore, other washing machines not specifically described above including a washing machine, a drying machine, a washing and drying machine, and other household washing machines applicable to the present invention are also included in the protection scope of the present invention.

[0021] As shown in FIG. 1, the operating panel area 12a in the front face 11e of the washing machine main body casing 11 is disposed with the washing machine start button 60 used for starting working of the washing machine, a program selection button 70 for selecting a washing machine working program, and a display board 80 for displaying a washing machine working state. The stuff box area 12b in the front face 11e is used for storing some cleaning products such as washing powder or washing liquid. The door and handle area 12c in the front face 11e is provided with the laundry input opening 51, and meanwhile is mounted with the washing machine door 20 used for closing the laundry input opening 51. The lock catch 21 is disposed on the washing machine door 20, and correspondingly the door lock latch 22 used for locking or unlocking the lock catch 21 is mounted on the washing machine casing 11, thereby enabling the washing machine door 20 to be closed and opened; in

another embodiment, the lock catch 21 is disposed on the washing machine casing 11, while the door lock latch 22 is mounted on the washing machine door 20, and likewise the effect of locking or unlocking the washing machine door 20 may be achieved. The electromagnetic component 30 is disposed at a position close to the door lock latch 22 on the washing machine casing 11, is connected to the washing machine main controller 13, and puts through power or cuts off power under the control of the main controller 13 to generate an electromagnetic attraction force or stop generating the electromagnetic attraction force. The attracted component 40 is disposed at a position close to the lock catch 21 on the washing machine door 20, and is generally stainless steel, ferroalloy, or permanent magnet. In another embodiment, the electromagnetic components 30 are continuously distributed and disposed along an edge of the laundry input opening 51 to form an electromagnetic coil, the electromagnetic attraction force generated in this way is larger, the attracted components 40 are continuously distributed and disposed along a periphery of the washing machine door 20 to increase the area attracted by the electromagnetic component 30, and increase the attraction force to overcome the resistance of the washing machine door 20 during automatic closing. When the washing machine start button 60 is triggered, the washing machine 100 begins to work, and the washing machine main controller 13 controls the electromagnetic component 30 to put through power to generate an electromagnetic attraction force. When the washing machine door 20 is closed and is close to the laundry input opening 51, the electromagnetic component 30 employs an electromagnetic attraction force on the attracted component 40, and the lock catch 21 automatically locks the door lock latch 22 in deadlock under the action of the electromagnetic attraction force, so that the washing machine door 20 is automatically attracted and completely closed transiently, so there is no worry that in a case of an insufficient force at the time of closing the door, the washing machine door 20 is not completely closed, resulting in a program error, and the washing machine 100 cannot normally work. When the washing machine door 20 is completely closed, the washing machine main controller 13 controls the electromagnetic component 30 to cut off power after receiving a closing signal of the washing machine door 20 to stop generating the electromagnetic attraction force, so as to save power consumption. The closing signal is sent to the main controller 13 through a corresponding circuit module in the door lock latch 22, and herein, that the door lock latch 22 is an electromagnetic lock 22' capable of sending the closing signal of the washing machine door 20 is taken as an example for illustration. The principle and structure of the electromagnetic lock 22' are well known by persons skilled in the art, and are not described in detail herein, but are only described from expansion of its function. When the lock catch 21 of the washing machine door 20 is locked into the lock hole of the electromagnetic lock 22' on the washing machine

casing 11 in deadlock, after a put-through power pulse and a cut-off power pulse are employed on the electromagnetic coil in the electromagnetic lock 22', a micro-switch in the electromagnetic lock 22' outputs a switch-on signal and sends the signal to the washing machine main controller 13, this switch-on signal is the closing signal for completely closing the washing machine door 20, the washing machine main controller 13 controls the electromagnetic component 30 to cut off power according to the closing signal to stop employing the electromagnetic attraction force on the attracted component 40. Moreover, in another embodiment, the electromagnetic component 30 is disposed on the washing machine door 20, while the attracted component 40 is correspondingly disposed on the washing machine casing 11, and the same effect of automatically closing the washing machine door 20 can also be achieved.

[0022] An operating control process of a washing machine with the foregoing structure is illustrated below.

[0023] Firstly, laundries are input through the laundry input opening 51, and the position of the washing machine door 20 is adjusted, so that the attracted component 40 is close to the electromagnetic component 30; when the washing machine start button 60 is pressed and a corresponding washing program is selected through the program selection button 70, the washing machine main controller 13 executes a washing machine door closing program to determine whether the washing machine door 20 is completely closed.

[0024] If the washing machine door 20 is not completely closed, the washing machine main controller 13 controls the electromagnetic component 30 to put through power to generate an electromagnetic attraction force and employ the electromagnetic attraction force on the attracted component 40, and the lock catch 21 on the washing machine door 20 automatically locks the door lock latch 22 in deadlock under the action of the electromagnetic attraction force, so that the washing machine door 20 is automatically attracted and completely closed transiently. If the washing machine door 20 is completely closed, the washing machine main controller 13 controls the electromagnetic component 30 to cut off power to stop generating the electromagnetic attraction force.

[0025] After the washing machine door 20 is completely closed, the washing machine 100 completes the washing work according to a washing program selected by the user.

[0026] Various specific embodiments described in the foregoing and shown in accompanying drawings are only used for illustrating the present invention, and are not entirety of the present invention. Within the scope of the basic technical thought of the present invention, any types of modifications for the present invention made by persons ordinarily skilled in the art fall within the protection scope of the present invention.

LIST OF REFERENCE NUMERALS

[0027]

washing machine	100	5
washing machine main body	10	
washing machine casing	11	
top face of the washing machine casing	11a	
bottom face of the washing machine casing	11b	
side face of the washing machine casing	11c	10
back face of the washing machine casing	11d	
front face of the washing machine casing	11e	
operating panel area	12a	
stuff box area	12b	15
door and handle area	12c	
washing machine door	20	
washing machine main controller	13	
lock catch	21	
door lock latch	22	20
electromagnetic lock	22'	
electromagnetic component	30	
attracted component	40	
cylindrical cavity	50	25
laundry input opening	51	
start button	60	
program selection button	70	
display board	80	30

Claims

1. A washing machine (100), comprising:

a washing machine main body (10) with a built-in main controller (13);
a cylindrical cavity (50) disposed in the washing machine main body (10) and for receiving laundry;
a washing machine door (20), connected to a washing machine main body casing (11) and for closing a laundry input opening (51) of the cylindrical cavity (50), formed on the washing machine main body casing (11);
a lock catch (21), disposed on one of the washing machine main body casing (11) and the washing machine door (20);
a door lock latch (22), disposed on the other one of the washing machine main body casing (11) and the washing machine door (20) and working together with the lock catch (21) to lock or unlock the washing machine door (20);
an electromagnetic component (30), mounted on one of the washing machine main body casing (11) and the washing machine door (20) and controlled by the main controller (13); and

an attracted component (40);
wherein upon triggering a start button (60) of the washing machine, the electromagnetic component (30) employs a transient attraction force on the attracted component (40), so that the lock catch (21) automatically locks the door lock latch (22),

characterized in that, the attracted component (40) is disposed on the other one of the washing machine main body casing (11) and the washing machine door (20) as the electromagnetic component (30).

2. The washing machine (100) according to claim 1, **characterized in that** the lock catch (21) is disposed on the washing machine door (20), and the door lock latch (22) is disposed on the washing machine casing (11).

3. The washing machine (100) according to claim 2, **characterized in that** the electromagnetic component (30) is disposed at a position on the washing machine main body casing (11) and close to the door lock latch (22), and the attracted component (40) is disposed at a position on the washing machine door (20) and close to the lock catch (21).

4. The washing machine (100) according to claim 1 **characterized in that**, the electromagnetic component (30) is disposed to be distributed continuously along an edge of the laundry input opening (51), and the attracted component (40) is disposed to be distributed continuously along a periphery of the washing machine door (20).

5. The washing machine (100) according to any one of claims 1 to 4, **characterized in that** the attracted component (40) is stainless steel, ferroalloy, or a permanent magnet.

6. A method for controlling the washing machine (100) according to claim 1, **characterized by** comprising the following steps:

- triggering the start button (60) of the washing machine; and
- executing a program for judging whether the washing machine door (20) is closed, wherein if the washing machine door (20) is not completely closed, the washing machine main controller (13) controls the electromagnetic component (30) to employ an attraction force on the attracted component (40).

7. The method for controlling the washing machine (100) according to claim 6, **characterized by** further comprising the following steps: executing the program for judging whether the washing machine door

(20) is closed, wherein if the washing machine door (20) is completely closed, the washing machine main controller (13) controls the electromagnetic component (30) to stop applying the attraction force on the attracted component (40).

8. The method for controlling the washing machine (100) according to claim 6 or 7, **characterized in that** the program for judging whether the washing machine door (20) is closed performs judgment through a close signal of the washing machine door (20) generated depending on whether the lock catch (21) locks the door lock latch (22) which is sent to the washing machine main controller (13).
9. The method for controlling the washing machine (100) according to claim 6 or 7, **characterized in that** the washing machine main controller (13) controls the electromagnetic component (30) by putting through or cutting off power supplied to the electromagnetic component (30).

Patentansprüche

1. Waschmaschine (100), die Folgendes umfasst:

einen Waschmaschinenhauptteil (10) mit einer integrierten Hauptsteuerung (13),
einen zylinderförmigen Hohlraum (50) zum Aufnehmen von Wäsche, der in dem Waschmaschinenhauptteil (10) angeordnet ist,
eine Waschmaschinentür (20), die mit einem Waschmaschinenhauptteilgehäuse (11) verbunden ist, zum Schließen einer an dem Waschmaschinenhauptteilgehäuse (11) ausgebildeten Wäscheeinlegeöffnung (51) des zylinderförmigen Hohlraums (50),
eine Schlossfalle (21), die an dem Waschmaschinenhauptteilgehäuse (11) oder der Waschmaschinentür (20) angeordnet ist,
eine Türschlossverriegelung (22), die an dem jeweils anderen Bestandteil, d.h. der Waschmaschinentür (20) oder dem Waschmaschinenhauptteilgehäuse (11), angeordnet ist und zusammen mit der Schlossfalle (21) die Waschmaschinentür (20) verriegelt oder entriegelt,
eine elektromagnetische Komponente (30), die an dem Waschmaschinenhauptteilgehäuse (11) oder der Waschmaschinentür (20) angebracht ist und von der Hauptsteuerung (13) gesteuert wird, und
eine angezogene Komponente (40),
wobei die elektromagnetische Komponente (30) nach Betätigen einer Starttaste (60) der Waschmaschine vorübergehend eine Anziehungskraft auf die angezogene Komponente (40) ausübt, so dass die Schlossfalle (21) die Türschlossver-

riegelung (22) automatisch verriegelt,
dadurch gekennzeichnet, dass die angezogene Komponente (40) in Bezug zu der elektromagnetischen Komponente (30) an dem jeweils anderen Bestandteil, d.h. der Waschmaschinentür (20) oder dem Waschmaschinenhauptteilgehäuse (11), angeordnet ist.

2. Waschmaschine (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Schlossfalle (21) an der Waschmaschinentür (20) und die Türschlossverriegelung (22) an dem Waschmaschinengehäuse (11) angeordnet ist.

3. Waschmaschine (100) nach Anspruch 2, **dadurch gekennzeichnet, dass** die elektromagnetische Komponente (30) in einer Position an dem Waschmaschinenhauptteilgehäuse (11) und in der Nähe der Türschlossverriegelung (22) und die angezogene Komponente (40) in einer Position an der Waschmaschinentür (20) und in der Nähe der Schlossfalle (21) angeordnet ist.

4. Waschmaschine (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** die elektromagnetische Komponente (30) durchgängig an einem Rand der Wäscheeinlegeöffnung (51) entlang verteilt und die angezogene Komponente (40) durchgängig an einem Umfang der Waschmaschinentür (20) entlang verteilt angeordnet ist.

5. Waschmaschine (100) nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** es sich bei der angezogenen Komponente (40) um Edelstahl, Ferrolegierung oder einen Permanentmagneten handelt.

6. Verfahren zum Steuern der Waschmaschine (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** es die folgenden Schritte umfasst:

a) Auslösen der Starttaste (60) der Waschmaschine und
b) Ausführen eines Programms zum Beurteilen, ob die Waschmaschinentür (20) geschlossen ist,
wobei die Waschmaschinenhauptsteuerung (13), wenn die Waschmaschinentür (20) nicht richtig geschlossen ist, die elektromagnetische Komponente (30) so steuert, dass sie eine Anziehungskraft auf die angezogene Komponente (40) ausübt.

7. Verfahren zum Steuern der Waschmaschine (100) nach Anspruch 6, **dadurch gekennzeichnet, dass** es ferner folgende Schritte umfasst: Ausführen des Programms zum Beurteilen, ob die Waschmaschinentür (20) geschlossen ist, wobei die Wascha-

schinenhauptsteuerung (13), wenn die Waschmaschinentür (20) richtig geschlossen ist, die elektromagnetische Komponente (30) so steuert, dass sie keine Anziehungskraft mehr auf die angezogene Komponente (40) ausübt.

8. Verfahren zum Steuern der Waschmaschine (100) nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** das Programm zum Beurteilen, ob die Waschmaschinentür (20) geschlossen ist, eine Beurteilung durch ein Schließsignal der Waschmaschinentür (20) durchführt, das in Abhängigkeit davon erzeugt wird, ob die Schlossfalle (21) die Türschlossverriegelung (22) verriegelt, und zur Waschmaschinenhauptsteuerung (13) gesendet wird.

9. Verfahren zum Steuern der Waschmaschine (100) nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** die Waschmaschinenhauptsteuerung (13) die elektromagnetische Komponente (30) dadurch steuert, dass sie die elektromagnetische Komponente (30) mit Strom versorgt oder deren Stromversorgung abschaltet.

Revendications

1. Machine à laver (100), comprenant :

un corps principal (10) de machine à laver avec un contrôleur principal (13) intégré ;
une cavité cylindrique (50) disposée dans le corps principal (10) de machine à laver et pour recevoir du linge à laver ;
une porte (20) de machine à laver, connectée à une carcasse (11) de corps principal de machine à laver et pour fermer une ouverture (51) d'entrée de linge à laver de la cavité cylindrique (50), formée sur la carcasse (11) de corps principal de machine à laver ;
un loquet de verrouillage (21), disposé sur une de la carcasse (11) de corps principal de machine à laver et de la porte (20) de machine à laver ;
une clenche de verrouillage (22) de porte, disposée sur l'autre de la carcasse (11) de corps principal de machine à laver et de la porte (20) de machine à laver et travaillant ensemble avec le loquet de verrouillage (21) pour verrouiller ou déverrouiller la porte (20) de machine à laver ;
un composant électromagnétique (30), monté sur une de la carcasse (11) de corps principal de machine à laver et de la porte (20) de machine à laver et commandé par le contrôleur principal (13) ; et
un composant attiré (40) ;
dans laquelle, au déclenchement d'un bouton de démarrage (60) de la machine à laver, le composant électromagnétique (30) emploie une for-

ce d'attraction transitoire sur le composant attiré (40), de sorte que le loquet de verrouillage (21) verrouille automatiquement la clenche de verrouillage (22) de porte,

caractérisée en ce que le composant attiré (40) est disposé sur l'autre de la carcasse (11) de corps principal de machine à laver et de la porte (20) de machine à laver par rapport au composant électromagnétique (30).

2. Machine à laver (100) selon la revendication 1, **caractérisée en ce que** le loquet de verrouillage (21) est disposé sur la porte (20) de machine à laver, et la clenche de verrouillage (22) de porte est disposée sur la carcasse (11) de machine à laver.

3. Machine à laver (100) selon la revendication 2, **caractérisée en ce que** le composant électromagnétique (30) est disposé en une position sur la carcasse (11) de corps principal de machine à laver et à proximité de la clenche de verrouillage (22) de porte, et le composant attiré (40) est disposé en une position sur la porte (20) de machine à laver et à proximité du loquet de verrouillage (21).

4. Machine à laver (100) selon la revendication 1, **caractérisée en ce que** le composant électromagnétique (30) est disposé de façon à être réparti de façon continue le long d'un bord de l'ouverture (51) d'entrée de linge à laver, et le composant attiré (40) est disposé de façon à être réparti de façon continue le long d'une périphérie de la porte (20) de machine à laver.

5. Machine à laver (100) selon l'une quelconque des revendications 1 à 4, **caractérisée en ce que** le composant attiré (40) est un acier inoxydable, un ferroalliage, ou un aimant permanent.

6. Procédé de commande de la machine à laver (100) selon la revendication 1, **caractérisé en ce que** comprenant les étapes suivantes :

a. déclenchement du bouton de démarrage (60) de la machine à laver ; et
b. exécution d'un programme pour juger si la porte (20) de machine à laver est fermée, dans lequel, si la porte (20) de machine à laver n'est pas complètement fermée, le contrôleur principal (13) de machine à laver commande le composant électromagnétique (30) pour employer une force d'attraction sur le composant attiré (40).

7. Procédé de commande de la machine à laver (100) selon la revendication 6, **caractérisé en ce que** comprenant en outre les étapes suivantes : exécution du programme pour juger si la porte (20) de ma-

chine à laver est fermée, dans lequel, si la porte (20) de machine à laver est complètement fermée, le contrôleur principal (13) de machine à laver commande le composant électromagnétique (30) pour arrêter d'appliquer la force d'attraction sur le composant attiré (40). 5

8. Procédé de commande de la machine à laver (100) selon la revendication 6 ou 7, **caractérisé en ce que** le programme pour juger si la porte (20) de machine à laver est fermée exécute un jugement par l'intermédiaire d'un signal de fermeture de la porte (20) de machine à laver généré selon que le loquet de verrouillage (21) verrouille la clenche de verrouillage (22) de porte qui est envoyé au contrôleur principal (13) de machine à laver. 10 15

9. Procédé de commande de la machine à laver (100) selon la revendication 6 ou 7, **caractérisé en ce que** le contrôleur principal (13) de machine à laver commande le composant électromagnétique (30) en laissant passer ou en coupant une alimentation électrique délivrée au composant électromagnétique (30). 20

25

30

35

40

45

50

55

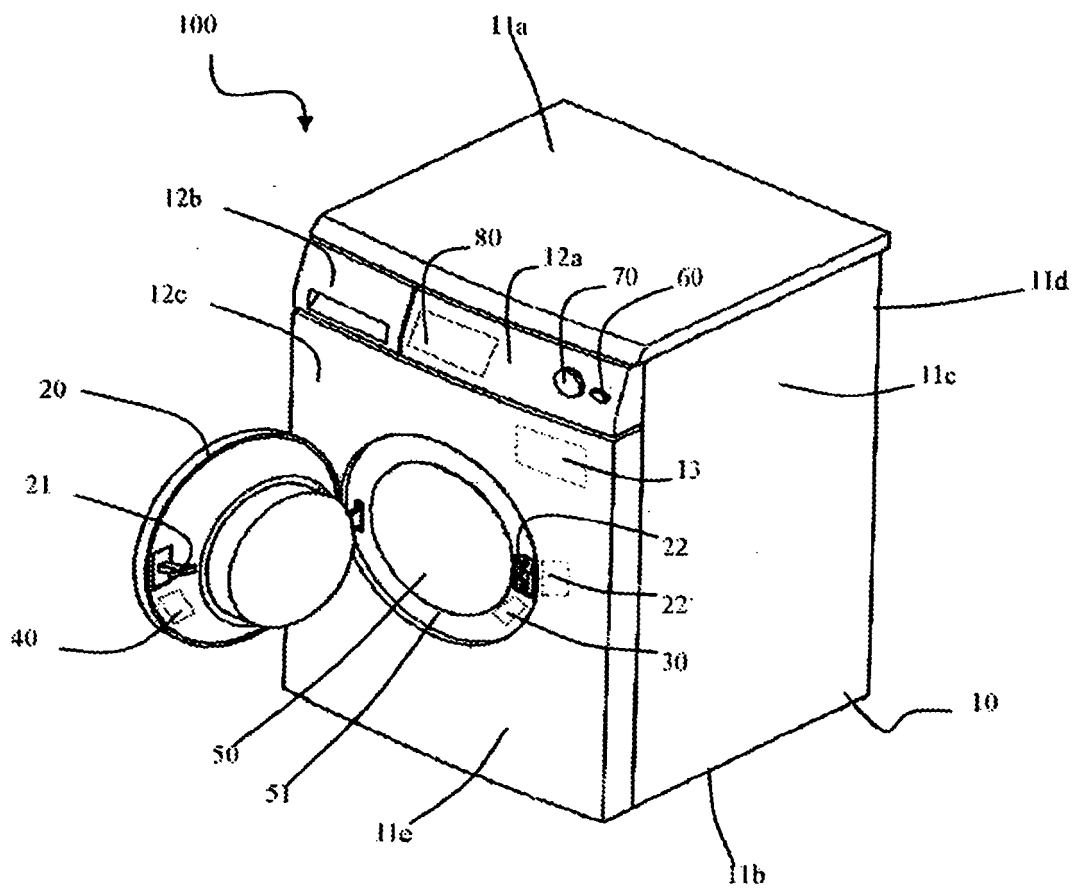


FIG. 1

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 2261415 A1 [0002]